Ghana - Agriculture - Feeder Roads

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Overview

Identification

COUNTRY
Ghana

EVALUATION TITLE
Agriculture - Feeder Roads

EVALUATION TYPE
Independent Evaluation

SERIES INFORMATION
These surveys were conducted as part of an impact evaluation, with the intention of conducting follow-up surveys in the future to measure changes in prices of goods and transportation of goods and passengers due to improvements in road quality. NORC's contract with MiDA completed this baseline data collection; the follow-up has yet to be awarded.

ID NUMBER
GHA-NORC-GMS-2009-v1

Version

VERSION DESCRIPTION
Version 1.0 (February 2012). This is the final, cleaned version of the data used for analysis.

PRODUCTION DATE
2012-02-21

Overview

ABSTRACT
The Ghana Millennium Development Authority's (MiDA) Agriculture Project within the Government of Ghana's Compact with the Millennium Challenge Corporation is design to improve farming in a number of areas. Under the Agricultural Project being implemented by (MiDA) some feeder roads are to be rehabilitated or reconstructed to promote development in the sector. In the first phase, about 336 km of feeder roads in eight (8) districts in two intervention zones are to be rehabilitated to reduce transportation costs and time, and increase access to major domestic and international markets. The feeder roads activity will also facilitate transportation linkages from rural areas to social service networks (including hospitals, clinics and schools).

The purpose of this project is to conduct an impact evaluation of the MiDA's Feeder Roads Activity. As stated in the Terms of Reference of the request for proposals, "the primary data for the impact evaluation will be a series of surveys similar in scope to the Consumer Price Index (CPI) survey, examining changes in prices over time Findings from the market surveys will contribute to the overall impact evaluation conducted by the Institute of Statistical, Social and Economic Research (ISSER). The Ghana Living Standards Survey (GLSS) 5+ is the primary instrument used in the overall evaluation, and 'Difference in Difference' is the proposed method of evaluation of data."

Thus, this study focuses on how prices of goods sold at local markets (that are transported on improved roads) change over time. It is also to document the changes in goods transport tariffs and passenger fares to market places served by the feeder roads.

The sample design uses a carefully tailored algorithm employed to match 154 localities that will benefit from the road improvements with an identical number of control localities that are comparatively far from the improvements. The sample size is sufficient to provide robust estimates of price effects associated with the road improvements. The minimum population for a locality to be included in the sample is 1,000, a condition imposed to help ensure that most designated items could be found in most localities.

Beginning in August 2009 interviewers visited the sample localities to obtain three price observations for each item in the

defined "basket" of goods and transportation services. The final "basket" contains 39 fresh food items, 24 packaged food items, 19 non food items and 6 transportation tariffs-3 for the locality's residents' most frequent passenger destinations and 3 for the most frequent freight destinations.

UNITS OF ANALYSIS
The main unit of analysis is a market. Within each market, we priced the following items at up to three different vendors: 39 fresh food items, 24 packaged food items, 19 non food items and 6 transportation tariffs-3 for the locality's residents' most frequent passenger destinations and 3 for the most frequent freight destinations.

KIND OF DATA
Sample survey data [ssd]

Scope

NOTES
The scope of the survey includes:

-Market/vendor information

-Prices of different type of goods

--39 fresh food items

--24 packaged food items

--19 non food items

--6 transportation tariffs-3 for the locality's residents' most frequent passenger destinations and 3 for the most frequent freight destinations

TOPICS

Topic	Vocabulary	URI
Agriculture and Irrigation	MCC Sector	

KEYWORDS
Ghana, Prices, Food, Transportation tariffs

Coverage

GEOGRAPHIC COVERAGE
308 localities in Ghana - 154 localities that will benefit from the road improvements with an identical number of control localities that are comparatively far from the improvements.

UNIVERSE
The data is only meant to represent the 308 localities surveyed. The results cannot be generalized to a larger population. The objective was not to produce estimates of national means and totals, but to estimate the parameters of an analytical model of program impact.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
NORC at the University of Chicago	
Pentax Management Consultancy Services	

OTHER PRODUCER(S)

Name	Affiliation	Role
Millenium Development Authority		

FUNDING

Name	Abbreviation	Role
Millenium Development Authority	MiDA	Provided funding for the project

OTHER ACKNOWLEDGEMENTS

Name	Affiliation	Role
Millenium Challenge Corporation		The MCC provided funding to MiDA, which was used in part to finance this study.

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Sam Haddaway		NORC at the University of Chicago	Documentation of the study

DATE OF METADATA PRODUCTION
2012-02-21

DDI DOCUMENT VERSION
Version 1.0 (February 2012). This is the first version of the document.

DDI DOCUMENT ID
DDI-GHA-NORC-GMS-2009-v1.1

MCC Compact and Program

COMPACT OR THRESHOLD
Ghana I

PROGRAM
Under the Agricultural Project that was implemented by Ghana's Millennium Development Authority (MiDA) some feeder roads were rehabilitated or reconstructed to promote development in the sector. In the first phase, about 336 km of feeder roads in eight (8) districts in two intervention zones were to be rehabilitated to reduce transportation costs and time, and increase access to major domestic and international markets. The feeder roads activity will also facilitate transportation linkages from rural areas to social service networks (including hospitals, clinics and schools). This study focuses on how prices of goods sold at local markets (that are transported on improved roads) change over time. It is also to document the changes in goods transport tariffs and passenger fares to market places served by the feeder roads.

MCC SECTOR
Agriculture and Irrigation (Ag & Irr)

Sampling

Study Population

The data is only meant to represent the 308 localities surveyed. The results cannot be generalized to a larger population. The objective was not to produce estimates of national means and totals, but to estimate the parameters of an analytical model of program impact.

Sampling Procedure

In the present application, the approach that is being used, in lieu of randomization, to select a control sample is statistical matching. A matched-pairs design was used, matching 174 (154 plus 20 replacements) treatment localities to 174 control localities using nearest-neighbor matching. Sampling was restricted, as mentioned earlier, to localities having population 1,000 or more (according to the 2000 Census) and to the 20 largest localities in each district.

The treatment population included all localities within 120 minutes estimated travel time of the nearest MiDA program road, and the control population included all localities located more than 120 minutes estimated travel time from the nearest MiDA program road. (The estimated travel times were calculated using a GIS model of the Ghana road network (documented separately).) This resulted in resulted in population sizes of 675 treatment units and 848 control units. Sampling was restricted to all of the country except Western Region.

Matching was based on a number of variables, including population, travel time to Accra, travel time to the nearest MiDA feeder road, and physiographic data.

The sample localities occur at all distances from the program roads, since it was desired to have substantial variation in the travel time to the program roads

Because of the sample design process, the sample has reasonable spread, balance and orthogonality for a large number of design variables. Also, the sample includes a control sample for which the units are individually matched to units in the treatment sample. The sample will be a very good one for use in estimating an analytical model showing the relationship of program impact (price changes) to the Ghana MiDA feeder-road improvements, and for estimating a double-difference estimate of program impact.

Deviations from Sample Design

Of the 308 sampled localities only one locality was removed from the sample because we were unable to locate it. This locality, Choo #0155, was not located and was removed along with its matching pair, Sabiye #0159. These localities were replaced with Suame #0812 and Ogbodzo #1264. All other localities were located and surveyed.

Weighting

No weighting is used in the dataset.

Questionnaires

Overview

During the initial visit the NORC FM identified a subset of items on the GLSS surveys to identify and price in the market. This initial pricing and observation allowed for a detailed understanding of the impediments interviewers may encounter during data collection. After observing local conditions the NORC FM met with his counterparts on the local subcontractor team (Pentax Management and Consulting) to carry out an item by item review of the GLSS survey. Through this review NORC and Pentax were able to refine the GLSS survey to meet the needs of the current study. Standard weights and product types were identified for the majority of products, non important items were deleted in order to reduce the time of the survey, and possible fielding issues were discussed with resolutions identified.

The three questionnaires are attached to this document - one for the pricing of goods, one for the pricing of tariff and passenger costs, and one for collecting information on the locality.

Data Collection

Data Collection Dates

Start	End	Cycle
2009-08-12	2009-09-07	N/A

Data Collection Mode

Face-to-face [f2f]

Data Collection Notes

Pentax, with the oversight of NORC, was responsible for advertising, interviewing, and hiring of all interviewing and data entry team members. To the maximum extent possible, Pentax drew on its roster of field interviewers and supervisors with whom it has previously worked in order to ensure the highest level of field staff quality. Training was conducted from August 3 - August 7, 2009 at Ange Hill Hotel in Accra. The NORC FM and Pentax FM led the training sessions which were attended by 25 interviewers. Of these interviewers, 24 completed the training satisfactorily with 1 interviewer not invited to participate in the full data collection. MiDA staff attended each day of training and supported the NORC/Pentax staff when needed. In addition to classroom exercises, the interviewers conducted a short pre-test of the survey protocols in Winneba and Swedru. Additional ad-hoc training was conducted on August 10 and August 11, 2009.
There were 4 field teams composed of 16 interviewers, 4 associate field supervisors, and 4 field supervisors for a total of 24 field staff. Supervisors were responsible for data editing before marking a survey as complete.
Field work was carried out from August 12, 2009 through September 7, 2009 in nine Ghanaian regions: Upper East, Upper West, Northern, Brong-Ahafo, Ashanti, Volta, Central, Eastern, and Greater Accra. Our sample was distributed across regions with an equal amount of treatment and control groups composing a total of 308 localities. During the first week of data collection, the NORC FM, Pentax FM, and MiDA supervisor visited each field team. Issues identified during the fieldwork phase can be found in section 3 of the “Phase 1, Baseline Findings Report” (attached), as can a detailed description of field procedures.

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Data Collectors

Name	Abbreviation	Affiliation
Pentax Management and Consulting	Pentax	

Supervision

There were 4 field teams composed of 16 interviewers, 4 associate field supervisors, and 4 field supervisors for a total of 24 field staff. Supervisors were responsible for management and oversight, and for data editing before marking a survey as complete.
During the first week of data collection, the NORC FM, Pentax FM, and MiDA supervisor visited each field team. Issues identified during the fieldwork phase can be found in section 3 of the “Phase 1, Baseline Findings Report” (attached). Following the first week, the Pentax FM was in continuous contact with the field teams as well as the NORC FM. All identified issues were handled appropriately to ensure high quality and a successful conclusion to the data collection period.

Data Processing

Data Editing

Data editing was done in the field by supervisors, and double data entry was carried out by Pentax. After receiving data from Pentax, NORC assisted with reconciliation between the first and second entries. After reconciling the data, NORC carried out significant data cleaning, including some imputation of values for missing observations. For a detailed explanation of data editing and cleaning, please refer to the attached “Phase 1, Baseline Findings” report. For the raw dataset receioved by NORC from Pentax, see the attached "Raw Data". For SPSS scripts detailing cleaning done on the dataset, see "SPSS Scripts".

Data Appraisal

No content available